



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

SEP 13 2013

REPLY TO THE ATTENTION OF:

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Robert Steele
Environmental Manager
LyondellBasell
Equistar Chemicals, LP
8805 North Tabler Road
Morris, Illinois 60450

Dear Mr. Steele:

The U.S. Environmental Protection Agency has determined that LyondellBasell's (Lyondell) facility at 8805 North Tabler Road, Morris, Illinois is in violation of the Clean Air Act (the Act) and associated state or local pollution control requirements. A list of the requirements violated is provided below. We are today issuing to you a Notice of Violation and Finding of Violation (NOV/FOV) for these violations.

EPA finds that Lyondell has violated the General Provisions to the New Source Performance Standards (NSPS), the NSPS for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry, the General Provisions to the National Emission Standards for Hazardous Air Pollutants (NESHAP), the NESHAP for Equipment Leaks (Fugitive Emission Sources) of Benzene, the NESHAP for Equipment Leaks (Fugitive Emission Sources), the NESHAP for Organic Liquids Distribution (Non-Gasoline), the Illinois State Implementation Plan, and Title V of the Act.

Section 113 of the Act gives us several enforcement options. These options include issuing an administrative compliance order, issuing an administrative penalty order, and bringing a judicial civil or criminal action.

We are offering you the opportunity to confer with us about the violations alleged in the NOV/FOV. The conference will give you an opportunity to present information on the specific findings of violation, any efforts you have taken to comply and the steps you will take to prevent future violations. Please plan for your facility's technical and management personnel to attend the conference to discuss compliance measures and commitments. You may have an attorney represent you at this conference.

The EPA contacts in this matter are Virginia Palmer, Environmental Engineer, and Susan Prout, Associate Regional Counsel. You may call them at (312) 353-2089 and (312) 353-1029, respectively, if you wish to request a conference. You should make the request for a conference within 10 calendar days following receipt of this letter. We should hold any conference within 30 calendar days following receipt of this letter. EPA hopes that this NOV/FOV will encourage Lyondell's compliance with the requirements of the Act.

Sincerely,

A handwritten signature in black ink, appearing to read "George T. Czerniak", written in a cursive style.

George T. Czerniak
Director
Air and Radiation Division

cc: Ray Pilapil, Manager
Compliance and Systems Management Section
Illinois Environmental Protection Agency

Enclosure

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5**

IN THE MATTER OF:

**LyondellBasell
Morris, Illinois**

Proceedings Pursuant to
the Clean Air Act
42 U.S.C. § 7401 *et seq.*

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**NOTICE OF VIOLATION and
FINDING OF VIOLATION**

EPA-5-13-IL-43

NOTICE AND FINDING OF VIOLATION

LyondellBasell (you or Lyondell) owns and operates a chemical manufacturing facility at 8805 North Tabler Road, Morris, Illinois (facility). Operations at the facility include an Olefins Unit, a Deethanizer Unit, Linear Low Density Polyethylene lines, Low Density Polyethylene lines, truck loading for a vinyl acetate storage tank, an off-gas treatment system for the Low Density Polyethylene lines, and a wastewater treatment plant. Air emission control equipment for these operations includes two flares, known as the Olefins Flare and the Polymers Flare.

The U.S. Environmental Protection Agency is sending this Notice of Violation and Finding of Violation (NOV/FOV or Notice) because you have failed to operate your flares in accordance with good engineering control practices for minimizing emissions and in accordance with their designs, in violation of the General Provisions to the New Source Performance Standards (NSPS), the NSPS for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry, the General Provisions to the National Emission Standards for Hazardous Air Pollutants (NESHAP), the NESHAP for Equipment Leaks (Fugitive Emission Sources) of Benzene, the NESHAP for Equipment Leaks (Fugitive Emission Sources) and the NESHAP for Organic Liquids Distribution (Non-Gasoline). Additionally, failing to operate your flares in accordance with good engineering control practices for minimizing emissions and in accordance with their designs can cause decreased combustion efficiency, resulting in violations of the Illinois State Implementation Plan (Illinois SIP) and the facility's Title V permit. The underlying statutory and regulatory requirements include provisions of the Clean Air Act.

NSPS Subpart A

1. Section 111(b) of the CAA, 42 U.S.C. § 7411(b) requires EPA to publish a list of categories of stationary sources and, within a year after the inclusion of a category of stationary sources in the list, to publish proposed regulations establishing Federal standards of performance for new sources within the source category.

2. On October 15, 1973, EPA promulgated the General Provisions for the Part 60 NSPS standards at 40 C.F.R. Part 60, Subpart A, §§ 60.1 - 60.19. 38 FR 28565; the provisions have been subsequently amended.

3. The NSPS regulations apply to the owner or operator of any stationary source that contains an "affected facility," the construction or modification of which is commenced after the date of publication of any proposed standard applicable to that facility. *See* 40 C.F.R. § 60.1(a).

4. 40 C.F.R. § 60.2 defines an "affected facility" under the NSPS, with reference to a stationary source, as any apparatus to which a standard is applicable.

5. 40 C.F.R. § 60.11(d) requires that "at all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions."

NSPS Subpart VV

6. On October 18, 1983, EPA promulgated the Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry (NSPS Subpart VV). *See* 48 Fed. Reg. 48328. NSPS Subpart VV is codified at 40 C.F.R. § 60.480 *et seq.* The Subpart has been subsequently amended.

7. 40 C.F.R. § 60.480(a)(1) provides that "[t]he provisions of this subpart apply to affected facilities in the synthetic organic chemicals manufacturing industry."

8. 40 C.F.R. § 60.480(a)(2) provides that "[t]he group of all equipment (defined in § 60.481) within a process unit is an affected facility."

9. 40 C.F.R. § 60.481 defines "equipment" as "each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, and flange or other connector in VOC service and any devices or systems required by this subpart."

10. 40 C.F.R. § 60.482-10(e) provides that "[o]wners or operators of control devices used to comply with the provisions of this subpart shall monitor these control devices to ensure that they are operated and maintained in conformance with their designs."

NESHAP Subpart J

11. On June 6, 1984, EPA promulgated the National Emission Standard for Equipment Leaks (Fugitive Emission Sources) of Benzene (NESHAP Subpart J). *See* 49 Fed. Reg. 23513. NESHAP Subpart J is codified at 40 C.F.R. § 61.110 *et seq.* The Subpart has been subsequently amended.

12. 40 C.F.R. § 61.110(a) provides that "[t]he provisions of this subpart apply to each of the following sources that are intended to operate in benzene service: pumps, compressors,

pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and control devices or systems required by this subpart.”

13. 40 C.F.R. § 61.112(a) provides that “[e]ach owner or operator subject to the provisions of this subpart shall comply with the requirements of subpart V of this part.”

NESHAP Subpart V

14. On June 6, 1984, EPA promulgated the National Emission Standard for Equipment Leaks (Fugitive Emission Sources) (NESHAP Subpart V). *See* 49 Fed. Reg. 23513. NESHAP Subpart J is codified at 40 C.F.R. § 61.240 *et seq.* The Subpart has been subsequently amended.

15. 40 C.F.R. § 61.240(a) provides that “[t]he provisions of this subpart apply to each of the following sources that are intended to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and control devices or systems required by this subpart.”

16. 40 C.F.R. § 61.242-11(e) provides that “[o]wners or operators of control devices that are used to comply with the provisions of this subpart shall monitor these control devices to ensure that they are operated and maintained in conformance with their design.”

MACT Subpart A

17. On March 16, 1994, EPA promulgated the General Provisions to the National Emission Standards for Hazardous Air Pollutants from Source Categories (MACT Subpart A). *See* 59 Fed. Reg. 12408. MACT Subpart A is codified at 40 C.F.R. § 63.1 *et seq.* The Subpart has been subsequently amended.

18. 40 C.F.R. § 63.6(e)(1)(i) provides that “[a]t all times, including periods of startup, shutdown, and malfunction, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.”

MACT Subpart EEEE

19. On February 3, 2004, EPA promulgated the National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline) (MACT Subpart EEEE). *See* 69 Fed. Reg. 5063. MACT Subpart EEEE is codified at 40 C.F.R. § 63.2330 *et seq.* The Subpart has been subsequently amended.

20. 40 C.F.R. § 63.2334(a) provides that “[e]xcept as provided for in paragraphs (b) and (c) of this section, you are subject to this subpart if you own or operate an [organic liquids

distribution] OLD operation that is located at, or is part of, a major source of HAP emissions. An OLD operation may occupy an entire plant site or be collocated with other industrial (e.g., manufacturing) operations at the same plant site.”

21. 40 C.F.R. § 63.2346(a)(4)(vi) provides that “[c]argo tanks and tank cars that deliver organic liquids to a storage tank must be reloaded or cleaned at a facility that utilizes the control techniques specified in paragraph (a)(4)(vi)(A) or (a)(4)(vi)(B) of this section.”

22. 40 C.F.R. § 63.2346(a)(4)(vi)(A) provides that “[t]he cargo tank or tank car must be connected to a closed-vent system with a control device that reduces inlet emissions of total organic HAP by 95 percent by weight or greater or to an exhaust concentration less than or equal to 20 ppmv, on a dry basis corrected to 3 percent oxygen for combustion devices using supplemental combustion air.”

23. 40 C.F.R. § 63.2346(a)(4)(vii) provides that “[t]he owner or operator of the facility where the cargo tank or tank car is reloaded or cleaned must comply with paragraphs (a)(4)(vii)(A) through (D) of this section.”

24. 40 C.F.R. § 63.2346(a)(4)(vii)(B) provides that “[i]f complying with paragraph (a)(4)(vi)(A) of this section, comply with the requirements for a closed vent system and control device as specified in this subpart EEEE. The notification requirements in § 63.2382 and the reporting requirements in § 63.2386 do not apply to the owner or operator of the offsite cleaning or reloading facility.”

25. 40 C.F.R. § 63.2350(b) provides that “[y]ou must always operate and maintain your affected source, including air pollution control and monitoring equipment, according to the provisions in § 63.6(e)(1)(i).”

26. 40 C.F.R. § 63.2378(b) provides that “[y]ou must follow the requirements in § 63.6(e)(1) and (3) during periods of startup, shutdown, malfunction, or nonoperation of the affected source or any part thereof. In addition, the provisions of paragraphs (b)(1) through (3) of this section apply.”

27. 40 C.F.R. § 63.2406 defines “organic liquids distribution (OLD) operation” as “the combination of activities and equipment used to store or transfer organic liquids into, out of, or within a plant site regardless of the specific activity being performed. Activities include, but are not limited to, storage, transfer, blending, compounding, and packaging.”

28. Table 12 of MACT Subpart EEEE provides that the requirements of 40 C.F.R. §§ 63.8(e)(1) and (3) apply to affected sources under MACT Subpart EEEE.

Illinois State Implementation Plan

29. On March 23, 2004, EPA approved Illinois rule 218 (69 Fed. Reg. 13474) as part of the Illinois State Implementation Plan.

30. Illinois SIP Rule 218.431 provides that "[t]he provisions of Sections 218.431 through 218.436 of this Subpart shall apply to [e]very owner or operator of any chemical manufacturing process unit that manufactures, as a primary product, one or more of the chemicals listed in Appendix A of this Part and that chemical manufacturing process unit causes or allows any reactor or distillation unit, either individually or in tandem, to discharge one or more process vent streams either directly to the atmosphere or to a recovery system..."

31. Illinois SIP Rule 218.432(a)(1) provides that "[e]very owner or operator of a source subject to the requirements of this Subpart, as determined by Section 218.431 of this Subpart, shall either: ...Reduce emissions of VOM, less methane or ethane, by 98 weight-percent, or to 20 ppmv, on a dry basis, corrected to 3 percent oxygen, whichever is less stringent."

Construction Permit 88120019

32. On March 2, 1999, Illinois EPA issued Construction Permit 88120019 to the Morris facility.

33. Condition 2 of Construction Permit 88120019 provides that VOM emissions from the railroad tank car unloading rack, 2 butene storage tanks (BSV-7200 & 85V-7250), 2 hexene storage tanks (BSV-7100 and BSV-7150) and a hexane storage tank (85V-7300) shall not exceed 6.39 tons per year.

Title V

34. Section 502(a) of the Act, 42 U.S.C. § 7661a(a), and 40 C.F.R. § 70.7(b) provide that, after the effective date of any permit program approved or promulgated under Title V of the Act, no source subject to Title V may operate except in compliance with a Title V permit.

35. 40 C.F.R. § 70.7(b) states "...no part 70 source may operate after the time that it is required to submit a timely and complete application under an approved permit program, except in compliance with a permit issued under a part 70 program."

36. 40 CFR § 52.23 states "[f]ailure to comply with...any approved regulatory provision of a State implementation plan, or with any permit condition or permit denial issued pursuant to approved or promulgated regulations for the review of new or modified stationary or indirect sources, or with any permit limitation or condition contained within an operating permit issued under an EPA-approved program that is incorporated into the State implementation plan, shall render the person or governmental entity so failing to comply in violation of a requirement of an applicable implementation plan and subject to enforcement action under section 113 of the Clean Air Act."

37. EPA gave final interim approval the Illinois Title V Permit program, effective March 7, 1995. 60 Fed. Reg. 12478 (March 7, 1995). EPA fully approved the Illinois Title V Permit program, effective November 30, 2001. 66 Fed. Reg. 62946 (December 4, 2001). Illinois' Title V Permit program requirements are codified at IAC Title 35, Part 270.

38. The Illinois Environmental Protection Agency (Illinois EPA) issued Title V Permit number 96010018 to the facility on September 7, 2000.

39. Section 5.2.5.a of the Title V Permit provides that “[s]hould this stationary source become subject to a regulation under 40 CFR Parts 60, 61, or 63, or 35 IAC after the date issued of this permit, then the owner or operator shall, in accordance with the applicable regulation(s), comply with the applicable requirements by the date(s) specified and shall certify compliance with the applicable requirements of such regulation(s) as part of the annual compliance certification, as required by 40 CFR Part 70 or 71.

40. Section 7.3.5 of the Title V permit provides that “[t]he flare shall be operated to reduce VOM emissions by 99%.”

41. Section 7.5.6 of the Title V permit provides that emissions from some affected storage tanks receiving material from the railroad unloading rack shall not exceed 6.39 tons of VOM per year. Section 7.5.6 also states that the limit was established in Permit 88120019 pursuant to 35 IAC 203 to “ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203.”

Factual Background

42. Lyondell owns and operates a chemical manufacturing facility at 8805 North Tabler Road, Morris, Illinois. The facility includes, among other control equipment, two flares, known as the Olefins Flare and the Polymers Flare. The Polymers Flare was formerly known as the Polypropylene (or PP) Flare.

43. The Morris facility is located in Aux Sable Township, Grundy County. Aux Sable and Goose Townships in Grundy County are currently designated marginal nonattainment for the 8-hour 2008 ozone standard (77 Fed. Reg. 34221). From June 15, 2004 (69 Fed. Reg. 23858) – August 13, 2012 (77 Fed. Reg. 48062), Aux Sable and Goose Townships in Grundy County were designated as a subpart 2 moderate ozone nonattainment area for the 1997 8-hour ozone standard. From 1991 to 2004, Grundy County was designated as a severe nonattainment area for the 1-hour ozone standard (56 Fed. Reg. 56694).

44. In July 1983, EPA released report EPA 600/2-83-052, titled Flare Efficiency Study (1983 Flare Study). This study, partially funded by EPA and the Chemical Manufacturers Association (CMA), included various tests to determine the combustion efficiency and hydrocarbon destruction efficiency of flares under a variety of operating conditions. Certain tests were conducted on a steam-assisted flare provided by John Zink Company. The tests performed included a wide range of steam flows and steam-to-vent gas ratios. The data collected showed decreasing combustion efficiencies when the steam-to-vent gas ratio was above 3.5. The tests showed the following efficiencies at the following steam-to-vent gas ratios:

Pounds of Steam to One Pound of Vent Gas	Combustion Efficiency (%)
3.45	99.7
5.67	82.18
6.86	68.95

The report concluded that excessive steam-to-vent gas ratios caused steam quenching of the flame during the tests which resulted in lower combustion efficiency.

45. On January 23, 2013, EPA issued a Section 114 Information Request to Lyondell. Lyondell submitted responses to the Information Request on March 1, 2013, and April 19, 2013.

46. On June 27, 2013, EPA issued another Section 114 Information Request to Lyondell. Lyondell submitted responses to the Information Request on July 25, 2013, August 14, 2013, and August 27, 2013.

47. Lyondell stated in its April 19, 2013, response to EPA's January 23, 2013 Information Request that prior to December 7, 2010, the Olefins Flare did not have steam flow meters installed. On December 7, 2010, a steam flow meter was installed on the Olefins flare.

48. Lyondell stated in its April 19, 2013, response to EPA's January 23, 2013 Information Request that the steam flow to the Polymers Flare is determined by an orifice-type flow meter, but that the data is "at the bottom end of the accuracy range" and that at times there is no signal because the flow is outside the operating range. Lyondell was unable to determine or provide steam flow rates to the Polymers Flare for any operating periods because of the stated lack of accurate data.

49. In the March 1, 2013 response to EPA's January 23, 2013 Information Request, Lyondell asserted that its Olefins Flare was subject to the following regulations: NSPS Subparts VV and NNN, NESHAP Subparts J, V and FFF, MACT Subparts SS, UU and YY, and IL SIP Rule 218.431 - 218.436.

50. In the March 1, 2013 response to EPA's January 23, 2013 Information Request, Lyondell asserted that its Polymers Flare was subject to the following regulations: NSPS Subparts VV and DDD, MACT Subparts SS, UU, EEEE and FFFF, and IL SIP Rule 218.431 - 218.436.

51. The Ethylene Plant Operating Unit Manual for the Tank Farm states the "[a]ccording to reports and tests performed in ethylene plants, it has been determined that up to 0.4 lbs of steam are needed per pound of flare gas:"

52. The Ethylene Plant is controlled by the Olefins Flare.

53. The Morris LLDPE Plant Operating Unit Manual states that "[e]xcessive Steam to the flare may decrease the destruction efficiency. Steam flow should be controlled using the IR camera for optimization... [a]pproximately 1/2 LB [sic] of steam is required per lb. of hydrocarbon

to eliminate smoke... [o]ur primary concern is to prevent smoking the flare, secondary but equally important, is to not have excessive steam flow as this decreases flare efficiency and waste steam."

54. The LLDPE Plant is controlled by the Polymers Flare.

55. LLDPE Line 6 has vented to the Polymers Flare since 2009. Prior to 2009 it vented to the LLDPE Plant flare or the Polypropylene Flare, both of which have since been shut down.

56. The comonomer tanks covered by Section 7.5.6 of the facility's Title V permit (85V2100, 85V2150, 85V2200, 85V2250 and 85V2300) vent to the Polymers Flare.

57. Lyondell provided EPA with actual steam-to-vent gas ratios achieved at the Olefins Flare from December 7, 2010 through January 25, 2013. These records show that Lyondell regularly exceeded the ratios recommended by its own documents as well as the amount above which testing has demonstrated decreased combustion efficiency. Specifically, Lyondell's records show that of the 7,462 hours for which steam-to-vent gas ratios were provided, the Olefins Flare has had:

- a. 7,387 hours (99%) during which the steam to vent gas ratio was greater than 0.4;
- b. 3,862 hours (51.8%) during which the steam to vent gas ratio was greater than 3.45;
- c. 1,926 hours (25.8%) during which the steam to vent gas ratio was greater than 5.67; and,
- d. 1,217 hours (16.3%) during which the steam to vent gas ratio was greater than 6.86.

58. Lyondell's data from the Olefins flares indicates that it often operated below 99% combustion efficiency.

59. In its August 14, 2013, response to EPA's June 27, 2013, Information Request, Lyondell reported that in 2008, it sent a total of 1,297,965 pounds of volatile organic compounds to the Polymers Flare from tanks 85V2100, 85V2150, 85V2200, 85V2250 and 85V2300. At 99% destruction efficiency, this would equate to 6.49 tons of volatile organic compounds emitted from the flare.

60. In its August 14, 2013, response to EPA's June 27, 2013, Information Request, Lyondell reported that in 2009, it sent a total of 1,392,627 pounds of volatile organic compounds to the Polymers Flare from tanks 85V2100, 85V2150, 85V2200, 85V2250 and 85V2300. At 99% destruction efficiency, this would equate to 6.96 tons of volatile organic compounds emitted from the flare.

Violations

61. By adding too much steam to the Olefins Flare and failing to monitor steam usage prior to December 7, 2010, Lyondell has failed to operate the flare in conformance with its design, in violation of 40 C.F.R. §§ 60.482-10(e), 61.112(a) and 61.242-11(e).

62. By adding too much steam to the Olefins Flare and failing to monitor steam usage prior to December 7, 2010, Lyondell has failed to operate the flare in a manner consistent with good engineering practices to minimize emissions, in violation of 40 C.F.R. §§ 60.11(d), 63.6(e)(1)(i) and 63.1111(a)(2).

63. By failing to monitor steam usage, Lyondell failed to operate the Polymers Flare in conformance with its design, in violation of 40 C.F.R. § 60.482-10(e).

64. By failing to monitor steam usage, Lyondell has failed to operate the Polymers Flare in a manner consistent with good engineering practices to minimize emissions, in violation of 40 C.F.R. §§ 63.6(e)(1)(i), 63.2350(b) and 63.2378(b).


65. By failing to operate the Olefins Flare to achieve at least 98% destruction efficiency, Lyondell has violated IL SIP Rule 218.432(a)(1).

66. By failing to operate the Olefins Flare to achieve at least 99% destruction efficiency, Lyondell has violated Section 7.3.5 of its Title V permit.

67. By failing to limit emissions from tanks 85V2100, 85V2150, 85V2200, 85V2250 and 85V2300 to less than 6.39 tons of volatile organic matter per year, Lyondell has violated Section 7.5.6 of its Title V Permit.

9/30/13

Date



George T. Czerniak
Acting Director
Air and Radiation Division

CERTIFICATE OF MAILING

I, Loretta Shaffer, certify that I sent a Notice and Finding of Violation, No. EPA-5-13-IL-43, by Certified Mail, Return Receipt Requested, to:

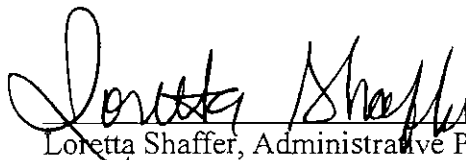
Robert Steele
Environmental Manager
LyondellBasell
Equistar Chemicals, LP
8805 North Tabler Road
Morris, Illinois 60450

I also certify that I sent copies of the Notice of Violation and Finding of Violation by first-class mail to:

Ray Pilapil, Section Manager
Compliance and Systems Management Section
Illinois Environmental Protection Agency
P.O. Box 19506
Springfield, Illinois 62794-9506

On the 1 day of October 2013.

CERTIFIED MAIL RECEIPT NUMBER: 7009 1680 0000 7669 5831



Loretta Shaffer, Administrative Program Assistant
Planning and Administration Section